

WHAT IS CLAIMED IS:

- 1 1. A process for the preparation of an epoxidation
2 catalyst which process comprises:
 - 3 (a) drying a silica gel carrier, comprising
4 silicon, having a weight average particle
5 size of from 0.1 mm to 2 mm, at a
6 temperature of from more than 200 °C to
7 300 °C; and,
 - 8 (b) contacting the carrier obtained in step
9 (a) with a gas stream comprising titanium
10 halide to obtain an impregnated carrier.
- 1 2. The process of claim 1, wherein the drying of
2 step (a) is performed at a temperature which is
3 higher than the temperature at which the
4 impregnation of step (b) is performed.
- 1 3. The process of claim 1, wherein the amount of
2 titanium halide supplied in step (b) is such that
3 the molar ratio of titanium halide added to
4 silicon present in the carrier is from 0.050 to
5 0.063.
- 1 4. The process of claim 1, wherein the gas stream
2 consists of titanium halide.
- 1 5. The process of claim 1, in which process the
2 silica gel carrier has a surface area of at most
3 500 m²/g.
- 1 6. The process of claim 1, wherein the silica gel
2 carrier is dried for a period of time of from 1
3 hour to 8 hours.
- 1 7. The process of claim 1, further comprising:
 - 2 (c) calcining the impregnated carrier to obtain a
3 calcined impregnated carrier; and,
 - 4 (d) hydrolyzing the calcined impregnated carrier.
- 1 8. The process of claim 7 further comprising:

- 2 (e) contacting the carrier obtained in step (d)
3 with a silylating agent.
- 1 9. The process of claim 8, wherein the drying of
2 step (a) is performed at a temperature which is
3 higher than the temperature at which the
4 impregnation of step (b) is performed.
- 1 10. The process of claim 8, wherein the amount of
2 titanium halide supplied in step (b) is such that
3 the molar ratio of titanium halide added to
4 silicon present in the carrier is from 0.050 to
5 0.063.
- 1 11. The process of claim 8, wherein the gas stream
2 consists of titanium halide.
- 1 12. The process of claim 8, wherein the silica gel
2 carrier has a surface area of at most 500 m²/g.
- 1 13. The process of claim 8, wherein the silica gel
2 carrier is dried for a period of time of from 1
3 hour to 8 hours.
- 1 14. The process of claim 8, wherein the calcining of
2 step (c) is performed at a temperature of at
3 least 500 °C.
- 1 15. The process of claim 8, wherein the hydrolyzing
2 of step (d) is performed at a temperature in the
3 range of from 150 °C to 400°C.
- 1 16. The process of claim 8, wherein the silylating
2 agent comprises hexamethyldisilazane.
- 1 17. A process for the preparation of an alkylene
2 oxide which process comprises:
3 contacting a hydroperoxide and an alkene
4 with a heterogeneous epoxidation catalyst; and,
5 withdrawing a product stream comprising an
6 alkylene oxide and an alcohol and/or water,
7 wherein the catalyst was prepared according to a
8 process comprising:

- 9 (a) drying a silica gel carrier, comprising
10 silicon, having a weight average particle
11 size of from 0.1 mm to 2 mm, at a
12 temperature of from more than 200 °C to
13 300 °C; and,
14 (b) contacting the carrier obtained in step (a)
15 with a gas stream comprising titanium
16 halide to obtain an impregnated carrier.
- 1 18. The process of claim 8, wherein the alkene
2 comprises propene and the alkylene oxide
3 comprises propylene oxide.
- 1 19. The process of claim 8, wherein the hydroperoxide
2 comprises ethylbenzene hydrogen peroxide and in
3 which the alcohol comprises 1-phenyl ethanol.
- 1 20. The process of claim 10, further comprising
2 dehydrating 1-phenylethanol to obtain styrene.